Chapter 3
Geospatial Technologies and USACE Project Management Business Process

3-1. Purpose

The purpose of this chapter is to give specific guidance on how geospatial technologies integrate in the Project Management Business Process (PMBP) and how the PMBP can be applied to eGIS. General guidance covering the PMBP is available in ER 5-1-11.

3-2. Definitions

a. PMPB – The way USACE conducts the business required to deliver quality projects and services including internal support services. The PMBP applies to planning, development, and management of programs and projects at all echelons of USACE.

b. Project Delivery Team (*PDT*) – The group or groups assembled by USACE to make the PMBP work. USACE draws on its diverse resources to assemble strong multidisciplined PDTs that are unlimited by geographic or organizational boundaries. The PDT is responsible and accountable for delivering a quality project to the customer.

c. Project Management Plan – A guide for quality project delivery for the PDT. Purpose is to help maintain a constant focus on project delivery and customer service.

d. eGIS Program Management Team – A group of technical experts that guide the Command in the implementation of geospatial technologies and eGIS.

3-3. Applications and Analysis

a. General applications and analysis. GD&Ss are successful when they are implemented in a way consistent with a corporate approach and meet the needs of users. The role of GD&S in project execution can be minimal or significant, depending upon the project. Alternative analysis is a required part of most projects. GD&S can support the alternative analysis, as well as help illustrate existing conditions. For regional or watershed projects, GD&S are central for integrating science and engineering data. The use of spatial analysis in the planning process is important, because it allows for more scenarios to be explored inexpensively. Using GD&S throughout the cycle of a project has the following potential:

(1) Access and integrate more data.

(2) Support better and more defendable decisions.

(3) Result in a stronger study.

(4) Support environmental assessments.

b. Examples of using geospatial technologies to support USACE traditional work. USACE has a great diversity of GD&S applications including Dredge Disposal Permitting and Analysis, Environmental Restoration, Resource Management, Habitat Analyses, Environmental Change Detection, Aquatic Plant Tracking, Historical Preservation, Hydrology and Hydraulics, Channel/Inland Waterways Maintenance,

Emergency Response, Flood Plain Mapping, Real Estate/Cadastral, Master Planning, District/Construction Management, Socioeconomic Analysis, and Geologic/Geomorphic Analysis. These applications support both the USACE civil and military missions. They emphasize providing access to geospatial data and rendering the data into information through quantitative and qualitative analyses and visual products. Through spatial analysis, GD&S are powerful decision-support tools.

c. District GD&S application categories. GD&Ss at the District level are employed for geospatial data analysis in support of USACE projects. Numerous District-level data sets are geospatial in nature and are best accessed and managed by using GD&S technologies. Among the means of access are visualization, spatial query, and spatial analysis geospatial data integration. These technologies support basic analysis and can provide modeling support. The result is a focusing of resources to support both quantitative and qualitative decision-making in the District mission areas and prepare support materials for the Division and Headquarters.

d. Division and Headquarters GD&S application categories. GD&Ss at the Division and Headquarters levels are typically business information systems that can access and display information spatially, such as the geospatial functionality in CorpsMap, Digital Project Notebook, Engineers Link, and the GIS module of O&M Business Information Link (Operations, Maintenance). As Headquarters and Division participation increases on project-related PDT's, there is a growing need for more integrated geospatial application tools at all levels of the organization. Integrated application tools supporting both the science and business of USACE are required at all levels of the organization.

e. Laboratory GD&S application categories. GD&Ss at the laboratory level are complex with many unique analysis and modeling applications in a variety of advanced research areas, including project support to Districts. Advanced GD&S projects at USACE laboratories include terrain visualization, modeling and simulation of environmental phenomena, model integration, hyperspectral analysis of imagery to support change detection, data dissemination using Internet technology, and applications research. Through the Civil Works Geospatial Research and Development Program, District needs as well as strategic GD&S issues are addressed.

f. Sample GD&S. USACE has many application areas for GD&S. As mentioned, GD&S can be applied to each mission area USACE executes. A clearinghouse of USACE projects for GIS is located at http://www.nww.usace.army.mil/apps/tscwrc. This site documents the use of GIS for various projects throughout USACE.

3-4. The Role of Geospatial Technologies in the Project Management Business Process (PMBP) Project Delivery Team (PDT)

a. Because the business of USACE is science and engineering, the associated scientific and engineering technologies are part of the PMBP and the Project Management Plan (PMP). The use of geospatial technologies in a project should be addressed throughout the life of the project. Furthermore, geospatial technologies should play a key role in the project.

b. At the project initiation phase, the presence of geospatial expertise is important to determine how large a role geospatial technologies will play (see Figure 3-1). If this role is to be significant, a geospatial specialist is required to be on the PDT. This team member has the following responsibilities:

(1) Educate the project managers, the PDTs on which they serve, and the District in general.

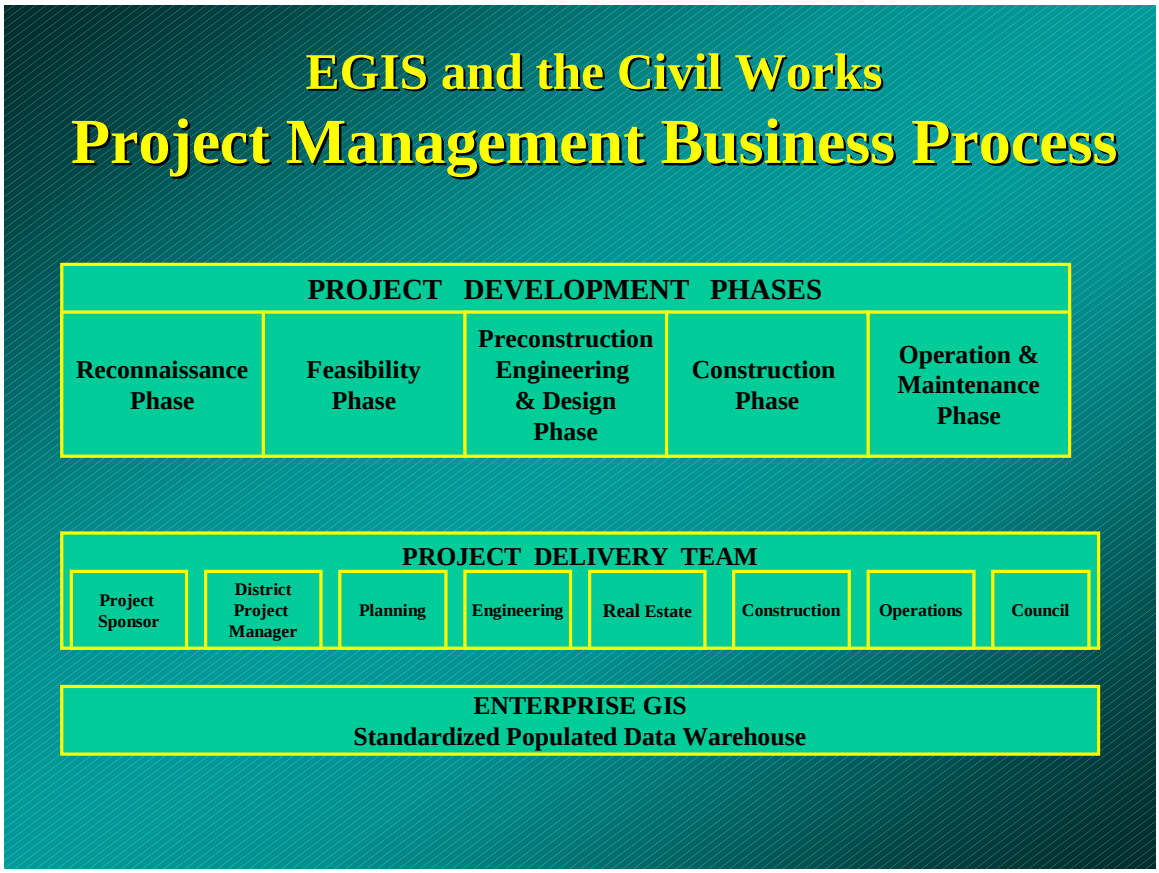

Figure 3-1. PMBP and eGIS

(2) Identify geospatial data requirements of the project and ensure that the guidelines outlined in Chapter 7 of this manual are followed for using existing data and for collecting new data (metadata, standards, etc.).

(3) Identify geospatial application and model requirements needed for the project. If a geospatial technology application needs to be developed, development should follow the guidelines outlined in Chapter 6 of this manual.

(4) Ensure that the specific PMP includes a component for managing geospatial data that includes costs and specific deliverables.

c. The extent of project resource requirements depends upon whether data and tools already exist. Environmental and planning studies typically require small-scale data; these studies can use public domain data or data USACE licenses. Construction and Engineering projects typically require large-scale data that must be collected. Regional studies require both large- and small-scale data that is integrated with nongeospatial data.

d. Civil works projects that cover large spatial areas require organized coordination specifically related to collection and mapping activities. For example, the Comprehensive Everglades Restoration Plan (CERP) is a civil works environmental restoration project that covers a spatial area of 18,000 square miles. The data collection and mapping requirements for this project involve Federal, State, and local agencies. To

coordinate, to avoid duplication of effort, to make spatial data available to diverse users, and to comply with State and Federal law, the Everglades Restoration Data Management Plan was established as part of the overall CERP. This plan was developed by members from Jacksonville District as well as representatives from Federal and State agencies. It addresses such issues as spatial data standards (GIS, surveying, mapping, and CADD) to ensure that geospatial data collected for CERP meets the needs of all its members. The CERP Data Management Plan is an example of applying the PMBP to geospatial data management in support of a civil works project. For further details on this plan, access http://www.evergladesplan.org/pm/progr_data_mgmt_plan.cfm.

e. When Data Management Plans are developed, approval is important from the Project Review Board (PRB) as well as high levels within other agencies. PRB support and involvement are critical for the success of the data management activities and the overall project.

3-5. Applying the PMBP to eGIS

a. eGIS) is a change in the way USACE has traditionally collected and accessed geospatial data for mission and project support. The concept of eGIS is not only to collect/purchase data in support of a specific project or mission, but also to collect/purchase that data for reuse in support of all of USACE (see paragraphs 2-8 and 2-9).

b. When a Command commits to implementing eGIS, a PDT is established by the Command's Geospatial Program Management Team. This eGIS PDT is then responsible for developing and executing the eGIS Project Management Business Process (see Chapter 4).